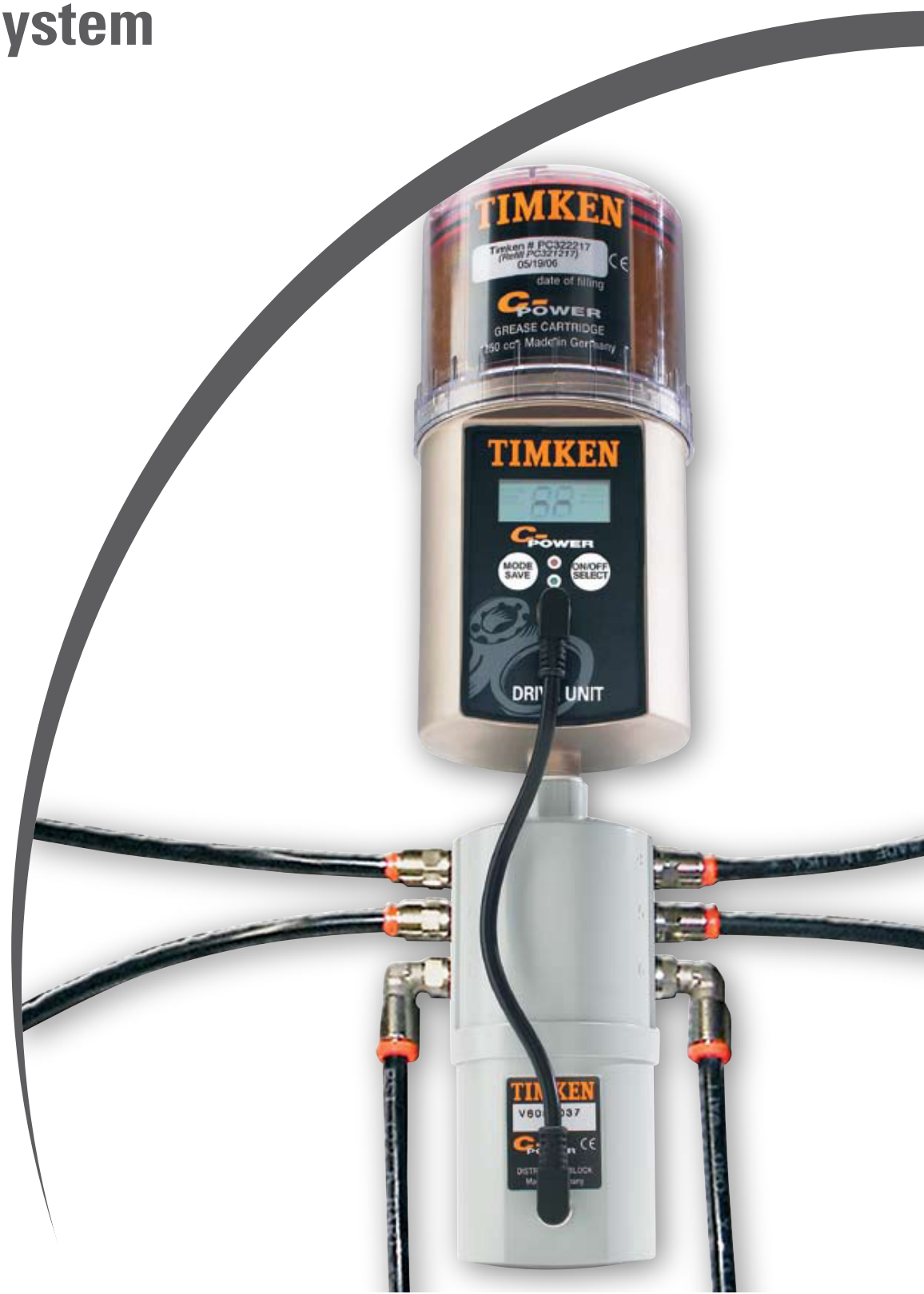
TIMKEN

Timken C-Power Multi-Point Lubricator Operating System Manual



QUICK REFERENCE TIMKEN C-POWER MULTI-POINT LUBRICATOR GUIDE

Protection Cover
With bayonet catch for quick opening and closing.

Timken C-Power LV-Unit
(Lubrication Canister)
Cartridge, piston, spindle filled with lubricant.

Red LED
Additional malfunction indication.

Push Button: MODE/SAVE
Leads to the Configuration Menu and saves the selected settings.

Drive Unit
Contains electronics, motor and pump system.

Content
Description of the contained lubricant and the filling date.

Type
Product type and size of Timken C-Power LV-Unit.

Display
Information about operating conditions, malfunctions, settings and the lubricant volume left in the Timken C-Power LV-Unit.

Push Button: ON/OFF/SELECT
To turn system ON or OFF and to change settings.

Green LED
Additional indication of the current operating condition.

Timken C-Power Distributor Block

Connection Thread
G 3/8 outside and G 1/8 inside for application into a lubrication point or for connecting a grease tube.

Display

Configuration menu
For entering the settings.

Outlets 1-6
Shows activated outlets.

Number
Shows remaining volume, discharge period, outlet no., PIN and malfunction codes.

Remaining volume of the Timken C-Power LV-Unit
Shows the lubricant remaining in the Timken C-Power LV-Unit in percent volume.

Setting Mode
Displays the current setting in days, weeks or months.

Size of Timken C-Power LV-Unit
Displays volume of LV-Unit (250 or 500 cc)

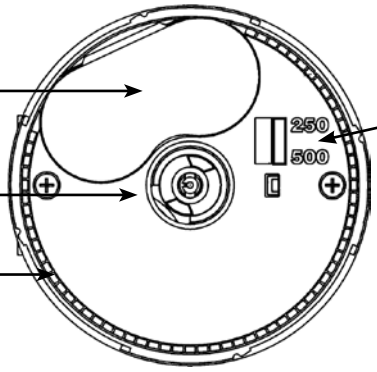
Ice Icon
Indicates either that the temperature fell below 0° C/32° F (icon blinking) or that the low temperature shutoff (below -20° C/-4° F) has turned the system off (icon permanent).

Drive Unit

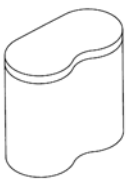
Battery Compartment
For insertion of battery set.

Catch
For driving the spindle.

Interlocking teeth
To position the Timken C-Power LV-Unit.



No Function
Setting of C-Power LV-Unit size is done via menu on the display.



Battery – Set
(Timken C-Power B)

On this page, you will find some important information for quick and easy operation and setting of the Timken C-Power. Before the first installation of the Timken C-Power, and whenever you need detailed instructions, you should read the complete Operating Manual, which contains information that must be observed. Make sure to follow the instructions given in the chapter “Safety Notes.”

1. **Assembly of the Timken C-Power/Exchange of Timken C-Power LV-Unit (refer to Chapters 4 and 7)**
   - Mount the drive unit on the mounting plate and secure it at the three pre-drilled holes (see attached template).
   - Insert a new battery set into the battery compartment (follow directions of the arrows).
   - Place the LV-Unit inside the cover and remove the plug of the LV-Unit.
   - Push the LV-Unit into the cover until lubricant comes out of the opening.
   - Place the LV-Unit with its cover on the drive unit. Make sure that the catch locks and that the teeth of LV-Unit and drive unit interlock.
   - Turn the cover clockwise until the bayonet catch locks.

2. **Determine the Discharge Period (refer to Chapter 6.7)**
   - Refer to the manufacturer’s guidelines about the lubrication point that you want to lubricate to determine the required lubricant amount in cc per one hundred operating hours.
   - Refer to Chart 3 (Chapter 6.7, Chart 4) and find your required lubrication amount. Based on that, the chart will show you the required C-Power LV-Unit size, the setting of the discharge period, and the setting mode.
   - You also may refer to our Timken Select program, which can be downloaded from our web page free of charge. It helps you in selecting the correct settings.

3. **Setting of LV-Unit Size, Discharge Period, Outlets and PIN (refer to Chapter 6.8)**
   - Hold down the MODE/SAVE button until the set time is displayed.
   - Hold down the MODE/SAVE button again until you reach the current PIN (PIN cannot be changed here/PIN setting at delivery is “00”).
   - Hold down the MODE/SAVE button again until you reach the other setting menus: LV-Unit, discharge period, outlets and PIN change. Change settings with a short push of MODE/SAVE or ON/OFF/SELECT.

4. **Save Settings (refer to Chapter 6.8)**
   - Keep the MODE/SAVE button pressed until display shows “––”.

5. **Starting Timken C-Power (refer to Chapter 6.5)**
   - Hold down the ON/OFF/SELECT button until the “Remaining Volume” appears in the display and the green LED starts blinking.

6. **Stopping Timken C-Power (refer to Chapter 6.6)**
   - Keep the ON/OFF/SELECT button pressed until the display shows (“––”).

QUICK REFERENCE DISTRIBUTION GUIDE

Connection Thread
For attaching a lubricator of the Timken C-Power Line.

Outlets 1 to 3
With connections for grease lines.

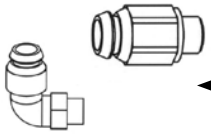
Outlets 4 to 6
With connections for grease lines.

Housing
Contains drive unit and distribution system.

Connector
Used for plugging in the connecting cable.

Accessories

Plugs (4 pcs.)
For sealing the outlets that are not used.



6 Connections
Straight or angle. For grease lines.

Connecting Cable (1 pc.)
Used for power supply and for communication.

Activation of Outlets on Timken C-Power Multi-Point Lubricator/Timken C-Power Control Multi-Point Lubricator

Activation/selection of outlets is done on the connected Timken C-Power/Timken C-Power Control. Please observe operating instructions (refer to Chapter 6.8) of the attached lubrication system since the following chart does not go into detail. Outlets must be activated by the user before operation (factory setting = all outlets inactive).

MODE SAVE	Config. Outlets 1□□4 2□□5 3□□6 **1**	On/Off Outlet 1: MODE SAVE or ON/OFF SELECT	Configuration of outlets: Activation of outlet 1
	Config. Outlets 1■□4 2□□5 3□□6 **1**		Outlet 1 active
MODE SAVE	Config. Outlets 1■□4 2□□5 3□□6 **2**	On/Off Outlet 2: MODE SAVE or ON/OFF SELECT	
	Config. Outlets 1■□4 2■□5 3□□6 **2**		Outlet 2 active (if desired, remaining outlets can be turned On/Off the same way)

On this page, you will find some important information for quick and easy operation and setting of your Timken C-Power Distributor Block. Before the Timken C-Power Distributor Block is used, prior to the assembly of the distributor with a lubricator of the Timken C-Power range and whenever you need detailed information, you should read the complete Operating Instructions, which contain information that must be observed. Make sure to follow the instructions given in the chapter “Safety Instructions.“

Additionally, you have to observe the Operating Instructions of the connected lubricator.

1. **Assembly of Timken C-Power (refer to Chapters 4.1 and 4.2)**
   - Screw connections into the outlets that you want to activate and seal the other outlets with plugs.

2. **Connect Timken C-Power to the Lubricator (refer to Chapter 4.2)**
   - Connect the lubricant tubes (Ø 8 x 1.5, inner-Ø 5mm, admissible total length per pipe up to 5 m) to the connecting pieces of the distributor and lay them between the distributor and the lubrication point.
   - Connect the lubricator with the distributor using the enclosed connecting cable. For this, the lubrication system must be switched off.

3. **Determine Discharge Period (refer to Chapter 6.7)**
   - Determine the required lubricant volume (cc) per one hundred operating hours while taking into account the number of open outlets. For this, you have to multiply the lubricant volume with the number of open outlets.
   - You have to take into account that this distributor is able to supply an equal amount of lubricant to up to six lubrication points.
   - Determine the required discharge volume using the Operating Instructions of the lubricator. Depending on the size of the Timken C-Power LV-Unit, you can then determine the setting of the discharge period and the setting mode.
   - You also may refer to our Timken Select program. It helps you in selecting the correct settings.

4. **Setting and Starting the Complete Lubrication System (refer to Chapter 6.5)**
   - Set discharge period or Impulse mode, size of Timken C-Power LV-Unit, outlets, PIN (refer to Timken C-Power Multi-Point Lubricator/Timken C-Power Control Multi-Point Lubricator operating instructions, Chapter 6.8, of each lubricator).
   - Keep the ON/OFF/SELECT button of the Timken C-Power Multi-Point Lubricator pressed until the display no longer shows “––” (for Off).
   - An automatic initialization is carried out by the lubrication system and the display shows the counting of the outlets.
   - After the initialization is complete, the display of the lubricator shows the remaining volume and the lubrication system starts to operate.

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QUICK REFERENCE GUIDE

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1. MISCELLANEOUS

About this Operating Manual

- This operating manual is intended for the safe operation of the Timken C-Power Multi-Point Lubricator. It contains safety instructions that must be adhered to.
- Everyone who works on or with the lubricator must have access to this operating manual during their shift. They also must pay attention to all relevant instructions and notices.
- The operating manual must always be kept complete and in easy to read condition.

Terms Used

- **Timken C-Power Multi-Point Lubricator**
  In the following text, the Timken C-Power Multi-Point Lubricator will either be called lubricator or by its name, Timken C-Power Multi-Point Lubricator.
- **Lubrication Canister**
  In the following text, the "Canister" will be called Timken C-Power LV-Unit. The user can order the Timken C-Power LV-Unit with different lubricants and in size 250 cc and 500 cc.

Usage of Safety Instructions

All safety instructions in this operating manual are standardized.

Danger Signs

This sign warns you of any danger to people's health or to subjects.

Tips

This sign alerts you to application tips that will help you in doing certain tasks quicker and safer.

1.1 Delivery/Content

- Timken C-Power Multi-Point Lubricator will be delivered according to customer specifications in regard to type of grease and size of Timken C-Power LV-Unit. The user must only assemble it and adjust the desired settings.
- Mounting device and screws included.
- Operating instructions and EC Conformity Declaration included. Upon delivery, make sure to check if the delivered goods correspond to your order. Timken will not accept liability for subsequent claims of any shortcomings.
- Please immediately forward any claims:
  - of noticeable transport damage: directly to the forwarder.
  - of noticeable faults, shortcomings or defects: directly to your Timken distributor.

1.2 Storage

When the lubricators are not immediately installed, you must ensure appropriate storage conditions in dry, dust-free places with a temperature of +20° C ±5° C (+68° F ±9° F).

Please make sure that the cover disc (2) with plug (3) on Timken C-Power/Timken C-Power Control Multi-Point Lubricator drive units (1) is never removed for a longer period since this will cause the internal support battery to empty prematurely.

Remove the cover disc only right before you intend to use the lubricator.

Extended storage periods without cover disc/plug or without a Timken C-Power LV-Unit should be avoided.

Make sure that Timken C-Power LV-Units and battery sets are not stored longer than one year.

Fig. 1.

1.3 Markings

- The lubricator is clearly marked with a label (serial number) on the drive system and a label on the Timken C-Power LV-Unit.
- CE mark on the drive unit and the Timken C-Power LV-Unit.
- Manufacturer:
  Timken
  Hammelburger Straße 21
  97717 Euerdorf, Germany

This equipment is suitable for use in Class I, Division 2, Groups A, B, C and D or non-hazardous locations only.

WARNING–EXPLOSIVE HAZARD–substitution of components may impair suitability for Class I, Division 2.

1.4 Intended Usage

- **The Timken C-Power Multi-Point Lubricator**
  - Immediately supplies all lubrication points with lubricant, at a pressure build-up of maximum 25 bar (360 psi.), permanently, precisely and independent of temperature.
  - Can be used for all lubrication points of sliding and roller bearings, drive and transport chains, sliding guideways, open gears and seals.
  - Should only be connected to/used with original lubrication tubes from Timken.
  - Is intended for use on machinery and equipment.
  - Is only to be used for the ordered purpose and purposes confirmed by Timken.
  - Is only to be used for operating conditions recommended in this operating manual.
  - Is only to be used with settings and variations recommended in this operating manual.

Any other usage, setting, addition and/or variation is considered inappropriate.

1.5 Legal Requirements

- **Liability**
  - The information, data and tips stated in this operating manual were up-to-data as of the printing date. No claims for already delivered Timken C-Power Multi-Point Lubricators can be made based on the information, pictures and descriptions
  - Timken cannot be held liable for damages and malfunctions caused by:
    - inappropriate usage;
    - unauthorized alterations to the drive system or the Timken C-Power LV-Unit;
    - inappropriate operations on or with the lubricator;
    - incorrect operation and settings of the lubricator;
    - incorrect settings of time and size of the lubricator;
    - ignoring the operating manual.

- **Warranty**
  - Warranty terms and conditions: see terms and conditions of sale and delivery pertaining to Timken.
  - Lodge any warranty claims with your local supplier immediately after the defect or error has been identified.
  - The warranty expires in all instances where no liability claims can be enforced.

2. SAFETY INSTRUCTIONS

2.1 Persons Responsible for Safety

- **The operator or his safety officer must warrant:**
  - that all the relevant regulations, instructions and laws are adhered to;
  - that only qualified personnel will work with and on the lubricator;
  - that unauthorized personnel are not allowed to work with and on the lubricator;
  - that the safety regulations are adhered to when mounting the lubricator or during maintenance.

2.2 General Safety Instructions

- We are not laying claim to completeness in regards to these safety instructions. Please contact Timken Customer Service if you have any questions or problems.
- At the time of delivery the lubricator is in line with state-of-the-art technology and in principle is considered to be safe to operate.
- Dangers emanate from the lubricator for persons, the lubricator itself and for other material assets of the operator if:
  - unqualified personnel operate the lubricator;
  - the lubricator is used inappropriately and for operations for which it was not intended;
  - the lubricator setting/variation is incorrect;
  - the lubricator is opened by force while in operation;
  - the lubricator is not mounted with the Timken mounting device;
  - the tube connection to the lubrication point was not carried out and attached correctly;
- Operate the lubricator only when it is in perfect condition.
- Retrofitting, changing or reconstructing the lubricator is prohibited. Timken must be consulted first.
- Only original tube connections and connectors from Timken can be used on or with the lubrication system since these will withstand high pressures of up to 25 bar (360psi).
- Ambient media, especially chemically aggressive substances, can attack seals and plastic.

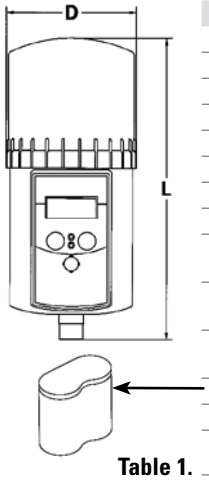
2.3 Safety Information for Timken C-Power Multi-Point Lubricator

- **Safety During Installation and Maintenance**
  - Ensure that all workstations and traffic routes are clean and safe.
  - Ensure that the relevant regulations and guidelines are adhered to when the installation or maintenance work is carried out in places where danger of falling exists.
  - Ensure that the relevant safety and operating instructions are observed when the lubricators are installed or serviced on machines or in factories (i.e. to stop the machine).

- **Safety When Handling the Timken C-Power LV-Unit**
  - Avoid contact of lubricant with eyes, skin and clothing.
  - Avoid swallowing lubricant.
  - Prevent lubricant from getting into soil or sewer system.
  - Observe lubricant safety data sheets.
  - Lubricant on traffic ways will increase the danger of slipping. Therefore, immediately clean lubricant from floors with special cleaner.
  - Only use original Timken C-Power LV-Units from Timken.

- **Safety when Handling Batteries.**
  - Avoid contact of battery substances with eyes, skin and clothing.
  - Avoid swallowing any leaking battery substances.
  - Observe safety data sheets for batteries.
  - Do not expose batteries to extreme heat and do not throw into open fire.
  - Do not recharge batteries.
  - Ensure that regulations for waste disposal of batteries are observed.
  - Only use original battery sets from Timken.

3. TECHNICAL DATA FOR DRIVE UNIT



	C-Power 250	C-Power 500
Volume of the C-Power LV-Unit	250 cc	500 cc
Length (L)	210 mm	260 mm
Diameter (D)	92 mm	92 mm
Weight, empty	1.30 kg	1.37 mm
Weight, filled with SF04	1.53 kg	1.82 mm
Discharge period	1 day to 24 months	1 day to 12 months
Discharged volume per lubrication impulse	0.5 cc	
Application temperature	-20° C to +60 ° C/-4° F to +140° F	
Maximum pressure buildup	25 bar/360 psi	Combination of these maximum-values can only be realized by temperatures of ≥20° C/68° F. At lower temperatures, the application is limited according to the diagram below.
Maximum tube length (inner-Ø 5 mm)	5m	
Lubricants	Greases up to rated consistency NLGI 2	
Power supply	Battery set C-Power B (3 V alkaline manganese, not rechargeable)	
Connection thread	G 3/8 outside – G 1/8 inside	
Protection class	Protection class IP 54 D L UL Certification and listing information	

Table 1.

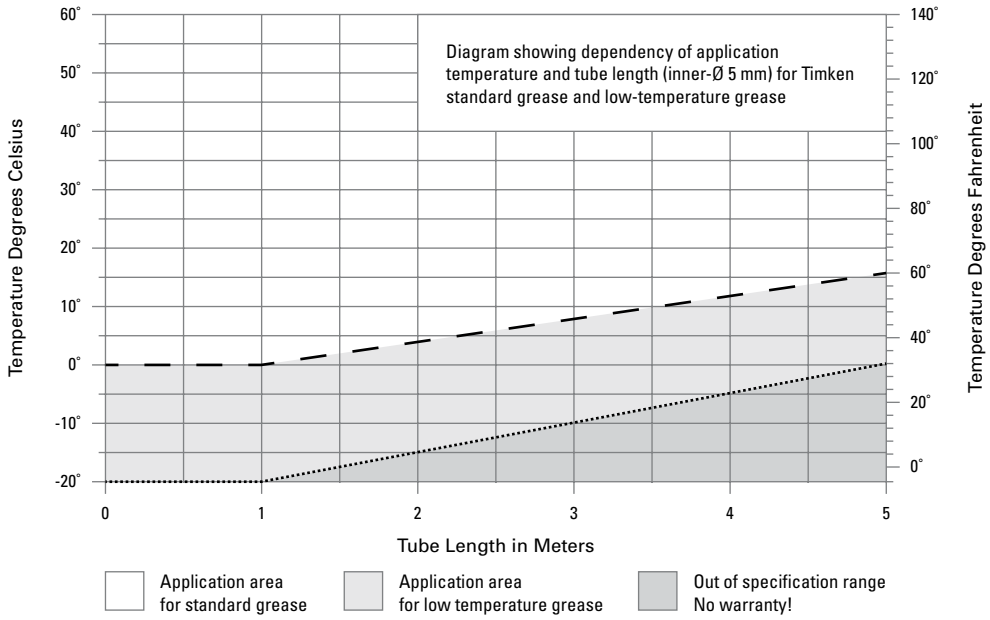


Table 2. The dashed standard grease and dotted low temperature lines show the maximum values allowed.

If your application is out of the specification range shown in this diagram, please contact your local distributor. Timken cannot be held liable for these applications.

Example:

1. *The application temperature is +5° C/+41° F. What is the maximum tube length allowed for standard grease?*
   Correct Answer: 3 m maximum tube length for standard grease, 5 m maximum tube length for low temperature grease (arrow 1 meets the dashed line of the standard grease range at 3 m)
2. *You want to use a 4 m tube. Up to what temperature can the system be used?*
   Correct Answer: +10° C/50° F with standard grease -5° C/23° F with low-temperature grease (arrow 3 meets the dotted line of low-temperature grease at the -5° C mark; and the dashed line of the standard grease at the +10° C mark)

	Timken C-Power Distributor Block
Length	148 mm
Diameter	64 mm
Weight	ca. 0.960 kg
Number of outlets	2 minimum 6 maximum
Maximum working pressure	25 bar (360 psi)
Lubricants	Greases up to rated consistency NLGI2
Ambient temperature	-20° C to +40° C/-4° F to +104° F
Power supply	from the lubricator via connecting cable
Connection thread for lubricators of the Timken C-Power line	G 3/8 inside
Connection thread for grease line	G 1/8 inside
Diameter of grease line	8 x 1.5 (inner-Ø 5mm)
Length of the grease line	Admissible total length per pipe up to 5 m. For details, please refer to the operating manual Timken C-Power/Timken C-Power Control, Chapter 3, page 7.
Storage conditions	Dry, dust-free at temperatures of +20° C ± 5° C/68° F ± 9° F
Protection class	IP 54

Table 4.

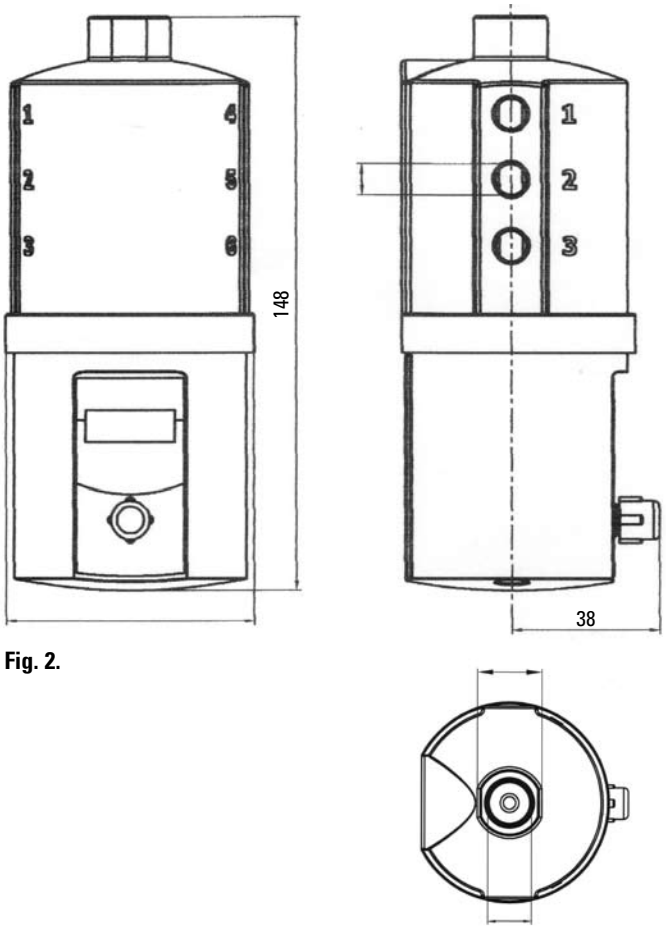
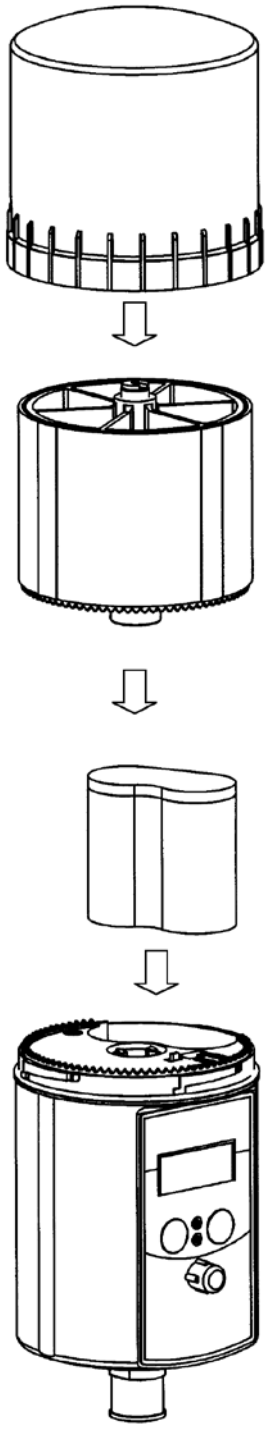


Fig. 2.

3.1 Design of the Timken C-Power Lubricator

Lubricators are available as 250 cc and 500 cc versions and they can be supplied with the lubricant requested by the customer. They consist of (refer to Fig. 3):



Protection cover for the drive unit, **reusable.**

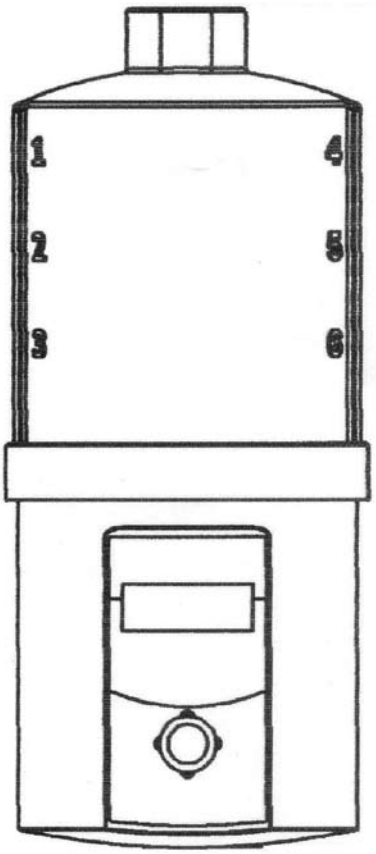
Timken C-Power LV-Unit can be supplied as 250 cc and 500 cc versions with the lubricant requested by the customer. **Usage of Timken C-Power LV-Units only.**

Battery set, consisting of two batteries. The batteries are not rechargeable and must be changed every time the Timken C-Power LV-Unit is replaced. **Batteries can only be used once. Usage of Timken battery sets only.**

Drive unit, consisting of a gear motor, a pump system and an electronic unit for the control system, **reusable.**

Table 3.

Each distributor (refer to Fig. 4) is supplied with all necessary accessories (refer to Fig. 5). The user must install the required connections or plugs and must connect the distributor to a lubricator of the Timken C-Power line. The Timken C-Power Distributor Block consists of:



Housing containing the drive unit and the distribution system (maximum 6 outlets).

Fig. 4.

Accessories

Connections (6 pcs.) for grease lines.

Plugs (4 pcs.) for sealing the outlets that are not used.

Connecting cable (short) for power supply of the distributor and for communication between distributor and lubricator.

Fig. 5.

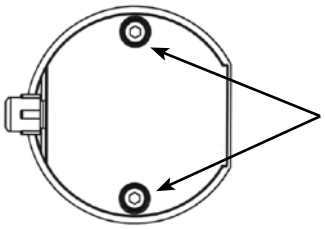
4. ASSEMBLY AND MOUNTING OF THE DISTRIBUTOR

4.1 Mounting the Connections

- Chose the number (6 maximum) and the position of the outlets that you intend to use.
- Screw the connections tightly (maximum torque of 2Nm) into the outlets to be opened (refer to Fig. 6).
- Seal all the remaining outlets using the enclosed plugs.

Fig. 6.

4.2 Distributor Housing



Never loosen these screws at the bottom of the distributor and **never** open the housing.

Fig. 7.

TIMKEN
Timken # PC322217
(Refill PC321217)
05/19/06
date of filling
C-POWER
GREASE CARTRIDGE
250 cc Made in Germany
TIMKEN
C-POWER
MODE SAVE
ON/OFF SELECT
TIMKEN

4.3 Assembly of the Lubricator

- Insert the battery set into the drive unit (according to the direction of the arrow on the label).

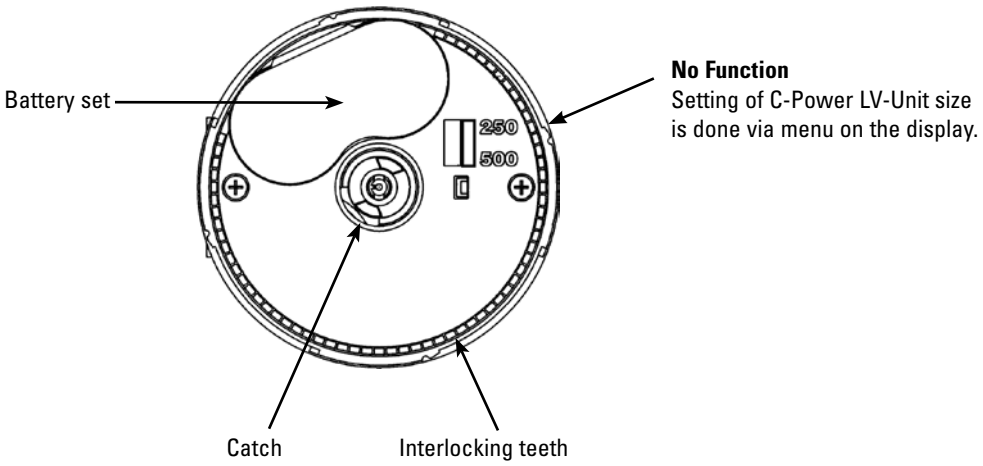


Fig. 8.

- Place the Timken C-Power LV-Unit inside the protection cover and remove the plug (refer to Fig. 9).

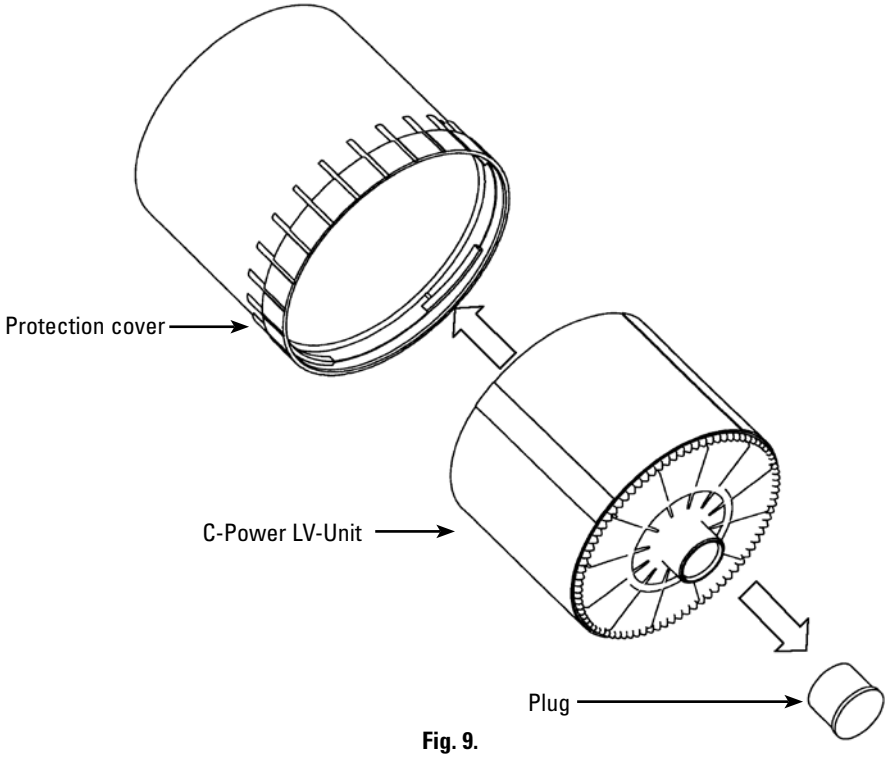


Fig. 9.

- Push the C-Power LV-Unit into the protection cover until lubricant comes out of the opening (refer to Fig. 10).

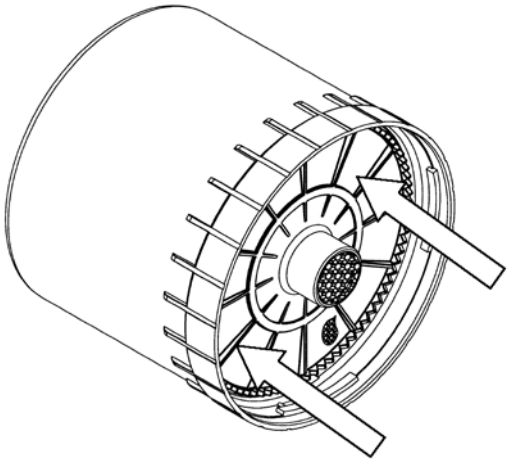


Fig. 10.

- Place the Timken C-Power LV-Unit with its protection cover on the drive-unit. Make sure that the catch locks in place and that the teeth of the Timken C-Power LV-Unit and the drive unit interlock (refer to Fig. 8 and Fig. 11).
- Turn the cover clockwise until the bayonet catch locks.

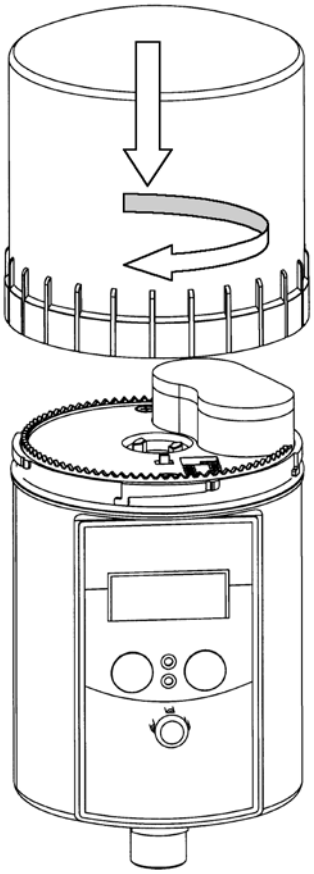


Fig. 11.

5. DISPLAY AND CONTROL ELEMENTS OF THE LUBRICATION SYSTEM

5.1 Display Elements

The operating status of the lubricator can be determined via the green or the red LED and via the display at the control unit (refer to Fig. 12) of the Timken C-Power Multi-Point Lubricator.

The Timken C-Power offers menu-guided setting. Changes of the settings are shown on the display. Error messages (for example, if the pressure in the lubricant tube gets too high) also are indicated on the display.

Fig. 12.

5.2 Function Indication on the Display

The display is located on the control unit of the Timken C-Power (refer to Fig. 8, Chapter 5.1). The display shows settings, operating conditions and error messages of the lubricator.

In error-free operation of the lubrication system, the display shows the remaining volume of the mounted Timken C-Power LV-Unit in percent volume (% Vol.). Fig. 13 shows an example of the displayed information if the Timken C-Power LV-500 Unit is new and full.

Fig. 13.

The display cannot be switched off by the operator. If the lubrication system is switched off, the display will always show two lines (see Fig. 14 below).

Fig. 14.

5.3 Function Indication via the LEDs

LED	Signal	Signal Length	Explanation
Green	Flash	Every 10 seconds	Operation (OK)
Red	Flash	Every 3 seconds	Error/malfunction
Green and Red	Flash	Every 3 seconds	C-Power LV-unit empty
Green	Light	Permanently	Lubricator is discharging
Green and Red	None	None	Lubricator switched off or battery low

Table 5.

5.4 Control Buttons

There are two push-buttons on the control unit (refer to Fig. 8), which can be used for a menu-guided change of the settings.

- With the MODE/SAVE button (refer to Fig. 15), you can reach the configuration menu, change the mode and save the modified settings for further operation.
- With the SELECT button (refer to Fig. 16), you can do the following: increase discharge period (Days, Weeks, Months – each press of the button increases the discharge period by one calendar unit), change Timken C-Power LV-Unit size, activate C-Power distributor outlets and set PIN.

Press	Short	Short	Long > 4 seconds until the displayed content changes completely	Long > 4 seconds until the displayed content changes completely
Button	Fig. 15.	Fig. 16.	Fig. 17.	Fig. 18.
Function	Selection in current display	Changing of values	Moves to new menu and saves selected values	Returns to original menu without saving changes

Table 6.

6. OPERATION AND CONTROL

Please note that the Timken C-Power Distributor Block may only be connected to a lubricator of the Timken C-Power line. If you combine the distributor with a Timken C-Power Multi-Point Lubricator, you also have to observe the Operating Instructions of the lubricator.

6.1 Preparations

- Prior to installing the lubrication system (lubricator and distributor), all lubrication points must be pre-lubricated and all grease lines must be sufficiently pre-filled with the same lubricant that is contained in the LV-Unit of the Timken C-Power Multi-Point Lubricator. For this, Timken offers a 400 g lubrication cartridge for grease presses with the corresponding lubricant (refer to Chart 3, Chapter 7).
- When installing the lubrication system, the supplied Timken mounting device should be used. The lubricator and the distributor should be fixed to this mounting device (refer to Chapter 4.3).
- The grease lines must be installed and mounted correctly. Grease lines must be from Timken and cannot exceed a length of 5 m per outlet.

For the initial setting into operation of a Timken C-Power Multi-Point Lubricator, the pump system in the drive unit is pre-filled with SF 04 from Timken's standard range of lubricants. An exception is made with regard to lubricants for the food industry. A complete discharge of this pump filling is guaranteed after approximately 10 discharges (carry out additional discharges, if necessary).

6.2 Prior to Operation

- Check all parts of the distributor and the complete lubrication system for obvious damages.
- Did you correctly assemble, mount and tighten all of the connections and the plugs of the distributor?
- Are the grease lines coming from the distributor mounted correctly on the connections?
- Did the lubricator recognize the distributor with all open outlets during initialization?
- Was the drive unit of the lubricator set to the discharge period requested by the operator while taking into account the required discharge volume and the number of open outlets?
- Did you correctly assemble, mount and tighten all of the parts?

6.3 Setting into Operation

- Open the required number of outlets by mounting the connections and seal the unused outlets with plugs (refer to Chapter 4.1).
- Screw together the distributor and the lubricator (refer to Chapter 4.2).
- If required, mount the distributor together with the lubricator onto the mounting device and onto a fixing device for wall mounting (refer to Chapter 4.2).
- Connect the distributor to the lubricator with the connecting cable to enable signal exchange (refer to Chapter 4.2).
- If necessary, carry out a manual initialization (refer to Chapter 6.10).
- Determine the discharge period for the open outlets (refer to Chapter 6.7).
- Set the discharge period with the push buttons on the lubricator (refer to Chapter 6.8).
- Activate the desired outlets with the push buttons on the lubricator (refer to Chapter 6.9).
- If necessary, do a manual initialization after a distributor exchange (refer to Chapter 6.10).
- Did the lubricator correctly recognize the distributor during initialization?
- Carry out an additional discharge (refer to Chapter 5.8). If the drive motor has started and the green LED is lit, the lubricator has started to discharge. The display of the lubricator indicates the remaining volume (% Vol.) of the Timken C-Power LV-Unit.

The operator must always check the customer-specific settings and, if necessary, change them before the lubricator is set into operation. In addition, the Operating Instructions of the lubricator must be observed.

6.4 During Operation

- Carry out regular inspections during operation. You should pay special attention to leakage, to the condition of the distributor, and the complete lubrication system.
- Regularly check the condition of the grease lines and the connections.
- Regularly check the filling level of the transparent Timken C-Power LV-Unit of the lubricator.
- After one or several additional discharges, calculate the remaining discharge period and mark it in your lubrication and maintenance schedule.
- If a malfunction is indicated on the display, you can determine the cause using the troubleshooting guide (refer to Chart 3, Chapter 6.2). If the fault cannot be fixed, please contact your supplier for technical support.

Additional discharges and long machine standstills must always be taken into account with regard to the remaining discharge period of the lubrication system.

6.5 Switching the Complete Lubrication System On

To switch on the Timken C-Power Multi-Point Lubricator (refer to Fig. 19), keep the ON/OFF/SELECT button of the lubricator pressed until the display no longer shows "––".

To start the Timken C-Power Control Multi-Point Lubricator you have to switch on the power supply. After switch-on, the lubricator automatically does an initialization (system recognizes the activated outlets). During initialization, the outlets (represented by squares) in the display are blinking. Activated outlets (squares) will be blackened, inactive outlets (squares) are blank.

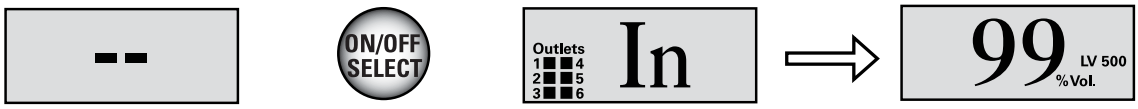


Fig. 19. The lubrication system is switched off. **Only with Timken C-Power.** **Initialization finished.** **The lubrication system is on.**

When the lubrication system is switched on for the first time, the initialization is carried out automatically by the lubricator. After the initialization is complete, the remaining volume is shown.

6.6 Switching the Complete Lubrication System Off

To switch off the Timken C-Power Multi-Point Lubricator (refer to Fig. 20), keep the ON/OFF/SELECT button of the lubricator pressed until the display no longer indicates the remaining volume but indicates "––" instead.

When the lubrication system is switched off, all of the settings are saved. This means that if you start the lubricator again, it will start the operation at the point where it had been switched off.

Fig. 20. Only with Timken C-Power.

6.7 Determining the Discharge Period

The required discharge period must be determined using the Operating Instructions of the connected lubricator. You have to take into account that the Timken C-Power Distributor Block is able to supply an equal amount of lubricant to up six lubrication points.

When determining the discharge volume, multiply the number of open outlets with the required discharge volume per outlet. With the result of this calculation, you can determine the setting point of the discharge period using the Operating Instructions of the connected lubricator.

6.8 Setting the Discharge Period

The discharge period can be set any time via the lubricator, and without having to interrupt the operation. It does not matter if the lubrication system is switched on or off, since the system switches back to its original operating status after the changes have been made.

For a precise setting of the discharge period, please refer to the Operating Instructions of the connected Timken C-Power Multi-Point Lubricator.

Additional Discharge

With an additional discharge, all open lubrication points can be supplied with an additional amount of the lubricant. Each open outlet provides 1.0 cc of the lubricant.

For an additional discharge, the lubrication system must be switched on and you have to press and hold down both buttons of the lubricator simultaneously (refer to Fig. 21).

An additional discharge is carried out at each activated outlet (it takes approximately 30 seconds between outlets). This means that if all outlets are open, the process of an additional discharge takes a maximum of 14 minutes.

Timken C-Power. **Timken C-Power Control.**

Fig. 21. For an additional discharge, press both buttons of the lubricator and hold them down.

An additional discharge is only possible at temperatures **above 0° C (32° F).**

Every additional discharge reduces the remaining discharge period since an increased amount of the lubricant has been supplied. This must be taken into account in your lubrication and maintenance schedule.

The time between two additional discharges is at least 30 seconds. Each additional long push of both buttons (Fig. 22) will be recorded by the system and leads to further additional discharges on all outlets. The system records up to 5 additional discharges.

Calculation of the Remaining Discharge Period

Please note, that in case of one or several additional discharges, the remaining discharge period of the lubrication system must be recalculated. This also applies in case of a shut-off of the lubrication system due to an extended machine standstill (i.e. weekends or annual holidays) or in case of a low-temperature shut-off carried out by the system if temperatures reach -20° C (-4° F).

For information on the calculation of the remaining discharge period, please refer to the Operating Instructions of the connected Timken C-Power Multi-Point Lubricator.

You also should note the result of your calculation of the remaining discharge period in your lubrication and maintenance schedule.

6.9 Settings and Display

MODE SAVE	Display	ON/OFF SELECT	Meaning/Description		
	--		Display at delivery with attached Timken LV-Unit		
MODE SAVE	Time 06 Months		Shows discharge period PIN-reset	Info	Configuration Menu Intro
MODE SAVE	PIN 00	Change first digit ON/OFF SELECT	Enter first digit of current PIN PIN "00"at delivery	PIN-Entry	
MODE SAVE	PIN 00	Change second digit ON/OFF SELECT	Enter second digit of current PIN		
MODE SAVE	Config. LV LV 500	Change from LV500 to LV250 ON/OFF SELECT	Set LV-Unit size	LV	
MODE SAVE	Config. Time 06 Months	Change months ON/OFF SELECT	Set discharge period: Either Months, Weeks or Days	Time	
MODE SAVE	Config. Time 01 Weeks	Change days or weeks ON/OFF SELECT	Set discharge period: Go to "Days" or "Weeks"		
MODE SAVE	Config. Outlets 1□4 2□5 3□6 1	Outlet 1 On/Off ON/OFF SELECT	Activate outlets: Activate outlet 1	Outlets	
	Config. Outlets 1■4 2□5 3□6 1		Outlet 1 activated		
MODE SAVE	Config. Outlets 1■4 2■5 3□6 2	Outlet 2 On/Off ON/OFF SELECT	Outlet 2 activated (if desired, other outlets may be turned On/Off the same way)		
MODE SAVE | MODE SAVE	Config. PIN 00	Change first digit ON/OFF SELECT	PIN (first digit) enter for initial configuration or after a PIN-reset – otherwise, setting is complete	PIN	
MODE SAVE	Config. PIN 00	Change second digit ON/OFF SELECT	PIN (second digit) enter for initial configuration or after a PIN-reset		
MODE SAVE	--		Configuration finished		

Table 7.

Caption for Chart on Left Side
Instructions should be followed from top to bottom and from left to right (also refer to Chart 3).
The instructions correspond to the operating sequence on the turned off Timken C-Power Multi-Point Lubricator. Configuration also is possible if Timken C-Power is On.

Table 8.

Function	Short Push	Long Push	Blinking Display	Go To
Symbol				

Configuration sections (see Table 7).

INTRO. INTRO informs (INFO) and asks for the current PIN (PIN-entry). Settings can be changed in the configuration menu with its different sections (LV, Time, Outlets, PIN).
CONFIGURATION MENU. LV. You can change the C-Power LV-Unit size from LV250 to LV500 and back by pushing the ON/OFF/SELECT button (refer to Chapter 7.1 and 7.2).
Time. The discharge period can only be set in **one** type of calendar unit (i.e. either Months, Weeks, or Days). When the highest unit is reached, counting starts again with number 01.
Outlets. Outlets 1-6 can be set individually. The activated outlets 1-6 are displayed with a filled-in square in the display).
PIN. We strongly suggest entering a personal PIN to protect your settings from unauthorized access. The PIN can **only be changed during initial configuration or after a PIN reset. A PIN reset** (short push of buttons: left-left-right-right-left in the INTRO-Info-menu) changes your personal PIN back to "00." The PIN reset was successful when the displayed time disappears for a second and then comes back on. All other settings remain unchanged.
Save or Reject Changed Settings. The display settings can be saved with a long push of the MODE/SAVE button. If you do not want to save your changes to settings that are currently displayed in the configuration menu (LV, Time, Outlets, PIN), press the ON/OFF/SELECT button until the display shows either ("––") for Off or the remaining volume of the Timken C-Power LV-Unit in % Vol. All other settings and already saved changes remain valid.
Automatic Termination of the Configuration Mode. If you do not press a button in the configuration menu for 180 seconds, the control system automatically switches back to the previously set mode ("On" or "Off") without saving the changes. All other settings and already saved changes remain valid.
Additional Discharge. With an additional discharge, a lubrication point can be supplied with an additional amount of the lubricant. For an additional discharge, the lubrication system must be switched on (display shows remaining volume) and you have to press both buttons simultaneously and hold them down (refer to Fig. 15).

Fig. 22. Lubricator On. For an additional discharge, press both buttons at the same time and hold them down.

An additional discharge is only possible at temperatures above 0° C/32° F (Fig. 25, ice crystal is not visible) and when the lubrication system is not currently conducting a regular discharge. Every additional discharge reduces the remaining discharge period since an increased amount of the lubricant has been supplied. This must be taken into account in your lubrication and maintenance schedule. A calculation is possible with the formula from Chapter 6.9 and with the remaining volume which is displayed.

The time between two additional discharges is 30 seconds. Each additional long push of both buttons (simultaneously, Fig. 22) during this time is being registered and will lead to even more additional discharges. The system remembers a maximum of 5 additional discharges.

6.10 Initialization of Distributor

Automatic Initialization of the Distributor

To supply lubricant to all open outlets and ensure a correct operation of the Timken C-Power distributor, an automatic initialization of the lubrication system is carried out when the system is switched on for the first time.

During initialization the system recognizes the activated outlets. Outlets (represented by squares) in the display are blinking. Activated outlets (squares) will be blackened, inactive outlets (squares) are blank.

When initialization is finished, the display shows the remaining volume and activated outlets. The green LED starts to blink and the lubrication system operates.

Manual Initialization of the Distributor

If you connect a new distributor to the lubricator (exchange old distributor with new one), you must do a manual initialization of the Timken C-Power Distributor Block. The system recognizes the activated outlets. Outlets (represented by squares) in the display are blinking. Activated outlets (squares) will be blackened, inactive outlets (squares) are blank.

A manual initialization (long push of both buttons on the lubricator – refer to Fig. 23) can only be done when the lubrication system is turned OFF (display of lubricator shows "––" for OFF).

Timken C-Power will immediately start initialization (refer to Fig. 12).

Timken C-Power. Timken C-Power Control.

Fig. 23. For a manual initialization, press and hold down both buttons of the lubricator simultaneously.

Timken C-Power Multi-Point Lubricator
When the manual initialization is completed, the display of the lubricator Timken C-Power shows "––" for OFF and the lubrication system is switched off.

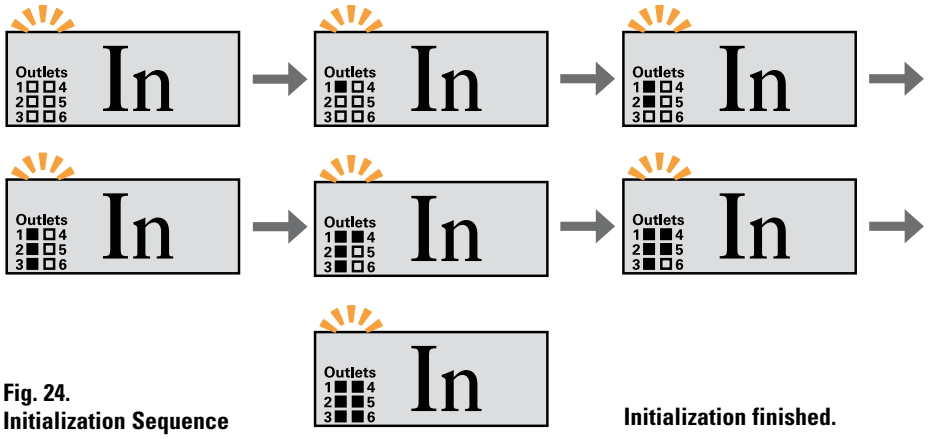


Fig. 24.
Initialization Sequence

Initialization finished.

6.11 Determining the Discharge Period

The discharge period is automatically factory set to six months according to the supplied Timken C-Power LV-Unit. The size of the Timken C-Power LV-Unit is taken into account.

If you want to determine the discharge period, you need to know the required amount of the lubricant in cubic centimeters for 100 operating hours (cc/100 h). This information can be taken from the technical documents of the manufacturer of the lubrication point. With this information, you can determine the discharge period using the following chart (Table 9).

	Average discharge volume in cc per 100 operating hours					
C-Power LV-Unit	250 cc			500 cc		
Setting mode / Setting point Discharge period	Days	Weeks	Months	Days	Weeks	Months
1	1041.7	148.8	34.3	2083.3	297.6	68.5
2	520.8	74.4	17.1	1041.7	148.8	34.3
3	347.2	49.6	11.4	694.4	99.2	22.8
4	260.4	37.2	8.6	520.8	74.4	17.1
5	208.3	29.8	6.9	416.7	59.5	13.7
6	173.6	24.8	5.7	347.2	49.6	11.4
7	148.8	21.3	4.9	297.6	42.5	9.8
8	130.2	18.6	4.3	260.4	37.2	8.6
9	115.7	16.5	3.8	231.5	33.1	7.6
10	104.2	14.9	3.4	208.3	29.8	6.9
11	94.7	13.5	3.1	189.4	27.1	6.2
12	86.8	12.4	2.9	173.6	24.8	5.7
13	80.1	11.4	2.6	160.3	22.9	--
14	74.4	10.6	2.4	148.8	21.3	--
15	69.4	9.9	2.3	138.9	19.8	--
16	65.1	9.3	2.1	130.2	18.6	--
17	61.3	8.8	2.0	122.5	17.5	--
18	57.9	8.3	1.9	115.7	16.5	--
19	54.8	7.8	1.8	109.6	15.7	--
20	52.1	7.4	1.7	104.2	14.9	--
21	49.6	7.1	1.6	99.2	14.2	--
22	47.3	6.8	1.6	94.7	13.5	--
23	45.3	6.5	1.5	90.6	12.9	--
24	43.4	6.2	1.4	86.8	12.4	--
25	41.7	--	--	83.3	--	--
26	40.1	--	--	80.1	--	--
27	38.6	--	--	77.2	--	--
28	37.2	--	--	74.4	--	--
29	35.9	--	--	71.8	--	--
30	34.7	--	--	69.4	--	--

Table 9.

In case of one or several additional discharges, the remaining discharge period of the lubrication system must be recalculated (refer to Chapter 6.9). This also applies in case of a cut-off of the lubrication system due to a long machine standstill (i.e. weekends or annual holidays). You also should note the result of your calculation of the remaining discharge period in your lubrication and maintenance schedule.

Low-Temperature Cut-Off of the Lubrication System
The temperature range from 0° C to -19° C (32° F to -2.2° F) is indicated by a blinking ice crystal symbol (refer to Fig. 16). In this temperature range, the lubrication system Timken C-Power continues to operate without interruption.

Please note that in this temperature range an additional discharge is not possible.

Fig. 25. Display with a blinking ice crystal (in this example with 89% Vol).

To protect the system from damage, the low-temperature cut-off of the lubrication system is automatically carried out by the control system and the built-in temperature sensor.

If the temperature reaches or falls below -20° C (-4° F), the lubricator is switched off by the low-temperature cut-off and the ice crystal symbol is permanently indicated on the display. The remaining volume is still displayed in % Vol.

From this time onward, the lubricant is no longer discharged. To prevent damages take this fact into account if your system continues to operate.

As soon as the temperature rises and reaches -19° C (-2.2° F) or higher, the control system switches the lubrication system on. The display shows the remaining volume and the blinking ice icon. **All discharges (except additional discharges) accumulated during the shut-off will be caught up when the system continues operation (at a maximum of two additional discharges with every regular discharge).**

6.12 Calculation of the Remaining Discharge Period

Please note that in case of one or several additional discharges, the remaining discharge period of the lubrication system must be recalculated. This also applies in case of a cut-off of the lubrication system due to a long machine standstill (i.e. weekends or annual holidays) or in case of a low-temperature cut-off carried out by the system if temperatures reach -20° C (-4° F).

You also should note the result of your calculation of the remaining discharge period in your lubrication and maintenance schedule.

Formula: $R_{DP} = \frac{SDP * RV}{100}$

SDP: Set Discharge Period of the lubricator (days, weeks, months)
RV: Remaining Volume (displayed in % Vol.)
R_{DP}: Remaining discharge period (days, weeks, months depending on SDP)

Example of a Calculation of the Remaining Discharge Period
The Timken C-Power with a 250 cc Timken C-Power LV-Unit was originally set to a discharge period (SDP) of eight months, since the lubrication point needs 4.3 cc lubricant /100 h. After two months, the Timken C-Power indicates a remaining volume (RV) of 75% Vol. At this point, the lubricator is switched off for six weeks (i.e. machine standstill). When it is switched on again, you would like to determine when the Timken C-Power LV-Unit will be empty.

$$R_{DP} = \frac{SDP * RV}{100} = \frac{8 * 75}{100} = \frac{600}{100} = 6$$

This results in a remaining discharge period of six months. After these six months, the Timken C-Power LV-Unit will be empty and must be replaced by a new one.

7. REPLACEMENT OF THE C-POWER LV-UNIT

The Following Must Always Be Taken into Account
If the replacement of an empty Timken C-Power LV-Unit becomes necessary, it will be indicated by a simultaneous blinking of the red and the green LED. Additionally, the display indicates that the Timken C-Power LV-Unit is empty (refer to Fig. 26).

Fig. 26.

If you replace the Timken C-Power LV-Unit, you also have to change the battery set. Otherwise, the correct operation of the lubricator cannot be guaranteed.

If you replace the Timken C-Power LV-Unit with a Timken C-Power LV-Unit of a different size, a corresponding protection cover must be used.

After the installation of the new Timken C-Power LV-Unit, the control system continues to operate using the previously valid setting of the discharge period.

7.1 Setting the Volume of the C-Power LV-Unit

The size of the C-Power LV-Unit must be set in the configuration menu with the two buttons on the drive unit (refer to Fig. 18). Please also refer to the settings and display chart (Table 7, Chapter 6.9).

ATTENTION.
If the displayed setting does not correspond with the attached C-Power LV-Unit size, it will result in incorrect discharge amounts and wrong signals in the display (Display, LEDs).

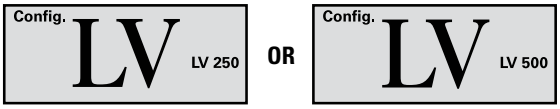


Fig. 27.

ATTENTION.
Whenever a C-Power LV-Unit is removed from the lubricator and is replaced by another LV-Unit, the control system assumes that a new, completely filled C-Power LV-Unit was attached. Therefore NEVER attach a C-Power LV-Unit that is not completely full.

7.2 How to Replace the C-Power LV-Unit

Drive system and circuit board must be protected from moisture. Exchanges should only be done in a dry place and it must be ensured that no moisture enters the drive unit.

a) Turn the protection cover on the drive unit counterclockwise and remove it.

b) Remove the empty Timken C-Power LV-Unit. The display indicates “LV” and the red LED is blinking.

c) Remove the used battery set from the drive unit.

d) Insert the new battery set into the drive unit. Follow the directions of the arrows.

e) Remove the plug of the Timken C-Power LV-Unit (refer to Fig. 9, Chapter 4.3.)

f) Push the Timken C-Power LV-Unit into the protection cover until lubricant comes out of the opening. (refer to Fig. 10, Chapter 4.3).

g) Place the new Timken C-Power LV-Unit on the drive unit, turn it until the catch locks and the teeth of the Timken C-Power LV-Unit and the drive unit interlock. The control system automatically recognizes the new Timken C-Power LV-Unit. The display indicates “––” if the Timken C-Power was switched off prior to the replacement of the Timken C-Power LV-Unit. Or it indicates “99% Vol.” if the Timken C-Power was switched on before the replacement. You should only use completely full Timken C-Power LV-Units to guarantee a trouble-free operation.

h) The lubrication system continues to operate with the previous setting of the discharge period.

i) If required, change lubricator settings (see Chapter 6.8).

If the lubricator was ON before changing the LV-Unit, it will automatically resume operation with existing settings. **If the lubricator was OFF, it must be turned ON (refer to Fig. 19, Chapter 6.5)**

8. TROUBLESHOOTING

8.1 Error Messages of the Distributor on the Display of the Lubricator

Possible errors of the distributor and the complete lubrication system are detected by the electronic control unit and are indicated on the display of the lubricator. For example, if the error message F2 is shown on the display, the required pressure at the second connected lubrication point exceeds 25 bar (360psi).

This means that this lubrication point is no longer supplied with lubricant. The distributor still provides lubricant to all other activated lubrication points. Correct the malfunction of the second lubrication point (i.e. grease line bent or blocked) and acknowledge it by pushing the ON/OFF/SELECT button on the lubricator Timken C-Power or the SELECT button on lubricator Timken C-Power Control.

Error messages are acknowledged and reset by pushing the ON/OFF/SELECT or SELECT button.

8.2 Troubleshooting Guide

If there are malfunctions during the operation of the distributor or the lubrication system, please check for possible causes using the following chart (refer to Table 10). If you have a malfunction that is not listed in the chart below, please contact your local supplier for technical support.

Every time that an error message is shown on the display of the lubricator, the red LED at the lubricator also is blinking.

Display shows	Malfunction	Possible cause	Corrective Action
E0	Lubrication system has been switched off	Excess motor current of the Timken C-Power Distributor Block	Replace Timken C-Power Distributor Block
F I to F6	Error at the displayed lubrication point	Excess motor current of the lubricator motor caused by a blocking of the displayed outlet	Clear the blockage and acknowledge the fault by pushing and holding down the ON/OFF/SELECT or SELECT button
E2	Lubrication system has been switched off	Outlets of distributor not correctly recognized.	Replace distributor
E3	Lubrication system has been switched off	Timeout while activating distributor Connection cable damaged	Replace distributor Replace connection cable
E4	Lubrication system has been switched off	Drive mechanism of the lubricator is defective	Replace the drive unit of the lubricator
E5	Outlet configuration missing	Outlets were not activated	Activate desired outlets (Turn off power supply on Timken C-Power Control before you acknowledge error messages)
LV	Lubrication system does not detect the Timken C-Power LV-Unit	No Timken C-Power LV-Unit installed	Install a Timken C-Power LV-Unit (Observe the Operating Instructions of the lubricator)
Lo (Only with Timken C-Power)	No power supplied to the lubrication system	No power supplied to the lubricator	Establish a power supply (Observe the Operating Instructions of the lubricator)

Table 10.

9. DISPOSAL

Help us in protecting the environment and saving resources by recycling valuable raw material. Please follow the individual waste disposal regulations in your country.

10. SERVICE

- If you wish to return a Timken C-Power Distributor Block that is no longer used, please check with your local supplier for possible return to recycle or dispose of the used parts in an environmentally safe manner.

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TIMKEN

The Timken team applies their know-how to improve the reliability and performance of machinery in diverse markets worldwide. The company designs, makes and markets high-performance mechanical components, including bearings, gears, chain and related mechanical power transmission products and services.

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